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SECTOR COMPETITIVENESS FRAMEWORKS

FOREST PRODUCTS

PART 1 – OVERVIEW AND PROSPECTS

Industry Sector
Forest Industries and Building Products

Secteur de l'industrie
Industries forestières et matériaux de construction

Canada

FOREST PRODUCTS

PART 1 – OVERVIEW AND PROSPECTS

PREPARED BY:
FOREST INDUSTRIES AND BUILDING PRODUCTS BRANCH

This *Overview and Prospects* is the first of two companion documents on Forest Products in the **Sector Competitiveness Frameworks** series, which is being produced by Industry Canada in partnership with Canada's key stakeholders in the industry. *Part 2 — Framework for Action* will be prepared in coming months, based on consultations with major industry stakeholders, following study and review of the *Overview and Prospects*.

The **Sector Competitiveness Frameworks** series will focus on the opportunities, both domestic and international, as well as on the challenges facing each sector. The objective is to seek ways in which government and private industry together can strengthen Canada's competitiveness and, in doing so, generate jobs and growth.

In all, some 29 industrial sectors will be analyzed. *Part 1 — Overview and Prospects* will be available for distribution in printed as well as electronic forms during coming months for the following industries:

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Cat. No. C21-22/2-1-1996E
ISBN 0-662-24731-0

Aussi disponible en français sous le titre : Les produits forestiers : Partie 1 — Vue d'ensemble et perspectives.

FOREWORD

The new Canadian marketplace is expanding from national to global horizons and its economic base is shifting increasingly from resources to knowledge. These trends are causing Canadian industries to readjust their business approaches, and government must respond with new tools to help them adapt and innovate. Industry Canada is moving forward with strategic information products and services in support of this industry reorientation. The goal is to aid the private sector in what it is best qualified to do — create jobs and growth.

Sector Competitiveness Frameworks are a series of studies published by Industry Canada to provide more focussed, timely and relevant expertise about businesses and industries. They identify sectors or subsectors having potential for increased exports and other opportunities leading to jobs and growth. In 1996–97, they will cover 29 of Canada's key manufacturing and service sectors.

While they deal with "nuts and bolts" issues affecting individual sectors, the Sector Competitiveness Frameworks also provide comprehensive analyses of policy issues cutting across all sectors. These issues include investment and financing, trade and export strategies, technological innovation and adaptation, human resources, the environment and sustainable development. A thorough understanding of how to capitalize on these issues is essential for a dynamic, job-creating economy.

Both government and the private sector must develop and perfect the ability to address competitive challenges and respond to opportunities. The Sector Competitiveness Frameworks illustrate how government and industry can commit to mutually beneficial goals and actions.

The Sector Competitiveness Frameworks are being published sequentially in two parts. An initial *Overview and Prospects* document profiles each sector in turn, examining trends and prospects. The follow-up *Framework for Action* draws upon consultations and input arising from industry–government collaboration, and identifies immediate to medium-term steps that both can take to improve sectoral competitiveness.

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1 HIGHLIGHTS

The forest products industry is Canada's leading manufacturing sector and largest net exporter. It is a cornerstone of the economy and a major component of the industrial structure and employment base of all regions of the country. The industry purchases over $6 billion worth of inputs annually from other industries and is the largest user of transportation services. In 1994, the industry directly employed 225 000 workers, and its activities supported up to 900 000 jobs in Canada. It is Canada's largest non-urban employer and hundreds of communities are dependent on the forest sector for their livelihood.

In 1995, Canadian forest industry shipments totalled $57 billion, which exceeded those of the motor vehicle or telecommunications equipment sectors. Canada is the world's largest exporter of forest products. Canada has about 420 million hectares of forest land, including the world's second largest commercial softwood forest after Russia's.

Wood is one of the most versatile materials known to humanity. It is used in the manufacture of over 5000 products. Companies in the Canadian forest products industry range from very small businesses to large multinational firms. Commodities tend to be produced in world-scale operations, which are often located close to the forest resource. Higher value-added products tend to be manufactured in small to medium-sized establishments that are usually located near or in urban centres. Sector firms are medium-sized in a global context. Unlike many manufacturing sectors in Canada, the forest industry is primarily Canadian owned.

Investment

The forest sector is based on a vast, renewable resource, which is a fundamental advantage to its development. Over time, this wood fibre supply advantage has been eroded; virtually all forests that can be allocated on a sustainable basis now have been committed. The industry increasingly has had to rely on more distant stands, often of lower quality and more costly to access and develop. At the same time, several foreign competitors are successfully harvesting fibre from their managed plantations at lower cost than Canadian enterprises.

Canada's rate of timber growth is about half that of Sweden or Finland, indicating a major potential for increased forest yield. There is also considerable potential for increased manufacture of high-value-added products, based on the diversity of species available in Canada and the existing large capacity of near-commodity products used as inputs. The sector can be a model for sustainable industry development, with a substantial capability to generate jobs and provide a high quality of life and wealth for Canadians.

A unique feature of the Canadian industry is that it is based on a provincially owned forest resource. In contrast to most competitor nations, only about 6 percent of Canada's forests are privately owned. This feature has often been construed by the United States as a source of unfair comparative advantage and has led to countervail action against Canadian exports to the U.S. When costs and benefits are accounted for, however, it can be demonstrated that government management of the resource reflects market evaluations of resource inputs.

In addition to being the principal owners of the forest resource, provinces have jurisdiction over the regulation of electrical utilities, which are major suppliers to the forest products industry. As a result, provincial governments have considerable control over the major wood and energy input costs of the sector. It is critical that these policies be managed to create an environment conducive to new investment. For example, relaxing restrictions on energy co-generation could offer advantages of simultaneously improving industry competitiveness and reducing environmental impact.

The forest products sector is Canada's most capital-intensive industry and accounted for 29 percent of total manufacturing capital expenditures in 1995. Major investments were made through the 1980s and 1990s in clean, highly efficient capacity to increase productivity and meet environmental standards. Like many industries focussed on commodities for export markets, the industry is subject to cyclical demand, prices and financial performance.

The level of capital intensity requires high operating rates and acts as an incentive to continue mill operation when prices fall, as long as variable costs are covered. Consequently, average return on investment has been modest. Timber supply constraints have also restrained capacity expansions, and the pattern of new investment in the industry is now changing. In recent years, less investment has been directed toward new plants in commodity product lines in favour of modernization and higher value-added products at existing mills.

Large investments are made each year in advanced equipment, which is largely imported. Increased domestic supplier capability would create high-wage, skilled jobs in Canada and stimulate technological synergy and enhanced competitiveness for both sectors. Targeted investment promotion could yield major results, building on Canada's large forest industry base and advantages as a gateway to foreign markets.

Trade

Given its enormous contribution to a positive merchandise trade balance, with nearly 75 percent of industry output being exported, market access issues are of major importance not only to the industry but also to the Canadian economy as a whole. The nature of these issues tends to be broader in scope and more complex than in other industries. In addition to tariffs, the policies of foreign governments regarding recycled content, building codes and standards as well as plant health regulations often constitute difficult non-tariff barriers for forest products. Such barriers are less transparent and can be more significant impediments to trade than tariffs.

While important progress has been made through multilateral trade agreements, government and industry continue to work as partners to improve access to foreign markets. Strong export performance to the U.S. has often provoked protectionist reaction by the U.S. industry. In the case of softwood lumber, Canadian government/industry cooperative market development initiatives are in place to diversify export markets and gain acceptance

within foreign building codes. In 1994, Canada and Japan signed an agreement on the mutual recognition of building product standards. As a result, Canadian producers have gained improved access to the Japanese market, contributing to rapid export growth for building products. In 1995, Canada was the largest exporter of manufactured housing to Japan.

Technology

Over its 200-year history, the Canadian forest industry has evolved as a world-class, technologically advanced industrial sector. To maintain and enhance international competitiveness, the Canadian industry needs to increase investment in research and development (R&D).

Relative to other major Canadian industries, patterns of R&D in this sector tend to be somewhat different. While a number of industry firms conduct proprietary research, much R&D is conducted collaboratively to address horizontal issues, such as environmental problems, which do not adversely affect competitiveness between individual firms. Such issues are well suited to collaborative research. Consequently, three world-class forest industry research institutes have been established in Canada.

As the principal owners of Canadian forests, governments are significant stakeholders in research on the resource. While external factors justify a substantial government role in R&D as well as in export market development, Industry Canada is working with industry to achieve more self-reliance in these areas.

Although substantial in absolute terms, R&D activity in the Canadian industry is considerably lower than its international competitors. This level may have been appropriate to the commodity-based business strategy of the past when an abundant, economical forest resource and low-cost electrical energy were readily available. Future success, however, will depend on the industry's ability to innovate and implement new technologies, including environmental technologies that will have global applications.

A shift in manufacturing emphasis to market-focussed, higher value-added products could contribute significantly to reduce business cyclicality and improve financial performance. At the same time, this sector has to address strong environmental pressures. To meet these challenges, Industry Canada is working with industry to encourage increased investment in R&D to achieve growth in productivity, develop higher value-added products and advanced manufacturing processes, and find acceptable solutions to environmental problems.

Human Resources

Employment in the forest products industry has remained virtually unchanged over the past decade, as job growth in the wood sector was offset by an equivalent reduction in the pulp and paper sector. However, there is considerable scope for increased employment in the rapidly developing higher value-added forest products and new supplier sectors, as well as in more intensive forest management. A critical challenge is to establish an innovative culture that is receptive to new technology and the development of differentiated products that command premium prices.

The rapid pace of technological change within the forest products industry has led to continuous increases in worker skill requirements. Industry Canada has been a full partner in efforts to design new education and training programs at the high school, college and university levels that are focussed on industry needs. One such initiative was the establishment of Canada's first graduate program for wood processing engineers at the University of British Columbia in 1995.

Sustainable Development

A combination of technological innovation and more stringent standards has resulted in dramatic reductions in the environmental impact of the forest sector. New technologies currently under development, such as "closed-loop" mills in the pulp and paper sector, hold the potential to virtually eliminate effluent and further improve environmental performance.

For government, the key challenge is to demand world-class standards of environmental performance while minimizing economic cost. As outlined in its 1994 *Building a More Innovative Economy* document, the federal government is working with provinces, producers and others to identify unnecessary regulatory burden and inefficiency. Significant progress has been made on this issue, including agreements on the administration of effluent regulation with eight provinces as well as the development of some single administration windows for the industry.

The Bottom Line

In contrast to the stagnant growth of many resource-based industries, global demand for forest products continues to grow. Notwithstanding opportunities for Canada to increase forest yields through intensive forest management, new forest plantations in fast-growth climates, as well as Russia's vast undeveloped softwood resource, pose a challenge to Canadian producers. At the same time, Canada's sector expertise relates well with Russia's forest industry development needs, and opportunities exist for expansion of Canadian business interests through joint undertakings, particularly in relation to rapidly growing Asian markets.

A growing global need for economical, energy-efficient housing is creating an unprecedented opportunity for Canada to become a major exporter of housing and building products. Developments in information technology and new business communications systems will likely alter patterns of paper demand, but the quality of Canada's wood fibre offers competitive advantage in global markets.

To prosper in the 21st century, the forest products industry will have to continue to adapt to a changing global environment. It must meet progressively higher customer expectations, develop new markets and shift from a commodity focus to differentiated products that command premium prices. With increasing global environmental awareness, the industry must cultivate the image and reality of being environmentally responsible in order to ensure continuing market access and consumer acceptance. While much remains to be done, there is every indication that the industry will rise to meet the challenges that lie ahead. Consequently, Canada can count on its forest products industry to be a vital and sustained source of economic wealth through the next century.

The issues and opportunities identified in this Overview will be addressed in greater detail in the forthcoming *Framework for Action*. Future success will require consensus building and concerted action by all sector stakeholders. Ideal vehicles for stakeholders to develop this action agenda are the management/labour-led private sector Forest Sector Advisory Council, and the Forest Industries Development Committee network for federal/provincial consultations.

2 KEY POINTS ABOUT THIS INDUSTRY

The forest products industry in Canada comprises two interrelated groups: *Paper and Allied Products Industries* (1980 Standard Industrial Classification major group 27), and *Wood Industries* (1980 Standard Industrial Classification major group 25). For details on the industries included in the Standard Industrial Classification of forest products industries, please see Annex A.

The paper and allied products industries group manufactures pulp and paper products such as market pulp and newsprint as well as converted or value-added paper products like packaging, coated papers, business papers and stationery, tissue and other consumer products. The wood industries group makes commodities like lumber, plywood, shingles and shakes, veneer, particleboard and oriented strandboard as well as higher value-added products such as manufactured housing, doors, windows, kitchen cabinets, hardwood flooring and pallets. For an explanatory note on the difference between commodity and value-added products, please see Annex B.

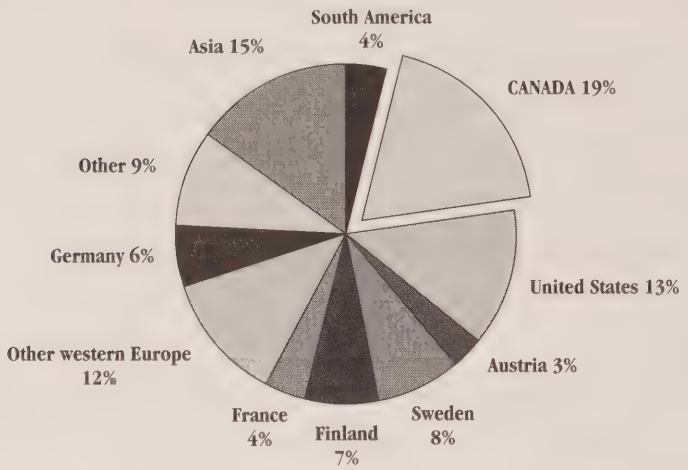
2.1 Global Context

Canada is the world's largest exporter of forest products

Canada ships 19 percent of global forest product exports, making it the world's largest exporter (Figure 1). In 1995, Canada's exports of forest products surpassed $41 billion. Our largest foreign markets continue to be the United States (66 percent), Japan (12 percent) and the European Union (11 percent).

Canada produces 28 percent of the world's newsprint, 32 percent of its market pulp and 19 percent of its softwood lumber. It also accounts for 55 percent of global newsprint exports, 32 percent of market pulp exports and 50 percent of international trade in softwood lumber.

Figure 1. World Forest Products Exporters by Country of Origin



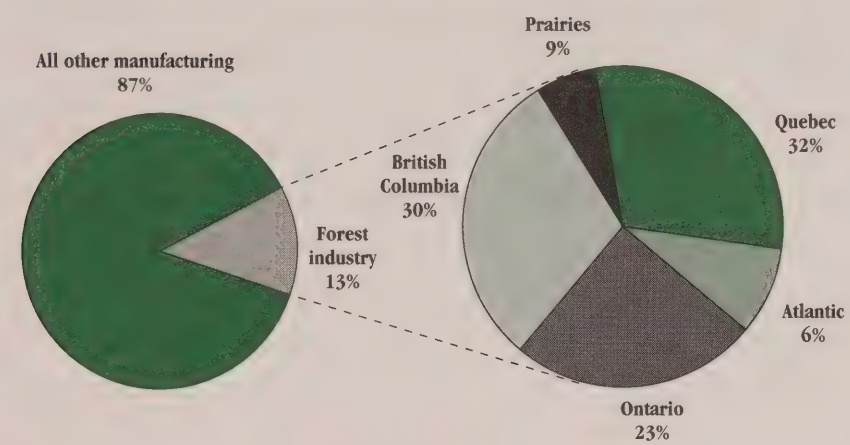
Source: United Nations Food and Agriculture Organization, 1993.

2.2 Canadian Industry Snapshot

A leading manufacturing sector

For more than two centuries, the forest products sector has played an integral role in Canada's economic development. Investors were initially attracted by the low-cost, abundant, high-quality forest resources, low-cost energy to transform them into forest products, and Canada's proximity to major markets. With growth and trade expansion, the industry became an important employer and exporter. Today, the forest products industry is the manufacturing sector making the largest contribution to Canada's wealth (Figure 2) as measured by gross domestic product (GDP), its largest contributor to the net trade balance, and a major employer in all regions of Canada.

Figure 2. Contribution of Forest Products Industry to Canada's Manufacturing GDP, 1995



Source: Statistics Canada, Catalogue No. 15-203, 1996.

A major contributor to the Canadian economy

There were 225 000 workers employed in over 3500 establishments across Canada in 1994. The paper and allied industries group produced $35.4 billion in shipments in 1995, while the wood industries produced $21.6 billion, for a total of $57 billion (Table 1). This represented an 18-percent increase over 1994 levels. In 1994, the forest products industry accounted for the following shares of manufacturing activity: 11 percent of all establishments, 13 percent of manufacturing employment, 13 percent of shipments, 13 percent of GDP and almost 3 percent of business sector GDP in Canada. In 1995 net exports of forest products exceeded those of all other sectors, including automotive products and information technologies.

Table 1. Forest Products Industry Highlights, 1995

Value of shipments	$57 billion
Exports	$41 billion
Trade balance	$35 billion
Direct employment	225 000[a]

	Shipments ($ billion)	Exports ($ billion)	Number of employees	Number of establishments
Pulp and paper	28.2	23.3	66 000	150
Value-added paper products	7.2	3.2	34 000	500
Commodity wood products	17.0	12.5	80 000	1 000
Value-added wood products	4.6	2.1	45 000	1 900
Total	57.0	41.1	225 000	3 550

[a] Does not include 64 000 jobs in forest harvesting and sylviculture.

Source: Statistics Canada.

In addition to its direct contribution to production and employment, the forest products industry supports a wide range of domestic goods and services industries.

A large consumer of many goods and services including energy, transportation and high-tech equipment

The forest products industry annually purchases over $6 billion of its inputs from five major industries. The energy and utilities sector is the largest supplier, accounting for over $2.2 billion in inputs for electric power, natural gas, gasoline, fuel oils and water as well as for sewage disposal. Annual expenditures on chemicals amount to some $1.3 billion, mainly for pulp and paper use. As the largest user of transportation services, annual forest products industry expenditures exceed $2.1 billion. All forest sector industries, including logging and forestry, wood and paper, rely heavily on the trucking industry for shipping their inputs and finished products. Coastal operations use marine transportation to ship finished products to offshore markets.

The industry also spends over $350 million annually on fabricated metal products and $150 million on plastic materials. The industry is also a major buyer of high-tech equipment such as computer control systems, pollution abatement and processing equipment. In addition, the forest products industry has extensive linkages with the engineering and services industries.

A very large portion of the industry's inputs are purchased through the wholesale and retail trade sectors. Annual purchases by the forest products industry generate over $1.1 billion in margins for those sectors. An additional $1 billion in annual expenditures is on services from the financial, insurance and real estate sectors.

A major source of government revenues

The forest products industry is a major source of public sector revenues. In 1995, it paid over $5.0 billion in taxes and other payments, of which about 45 percent was for provincial stumpage fees.

Largely Canadian owned

Overall, companies range from very small operations to some of Canada's largest corporations. While most firms are Canadian-owned, foreign multinationals have a significant presence. In early 1994, major Canadian publicly traded corporations represented about 60 percent of total forest products industry sales, major Canadian privately owned companies about 15 percent, and small private domestic firms and foreign subsidiaries the remaining 25 percent.

Thirteen firms in 1994 had annual sales exceeding $1 billion, which together accounted for over 50 percent of the industry total. Although large in Canadian terms, Canadian major forest products companies are relatively small in a global context (Table 2).

Table 2. Canadian Forest Products Industry Companies are Small in Global Terms

	Net sales 1995 ($Cdn million)	Global ranking 1994	Profitability 1995 ($Cdn million)
Top 5 foreign firms:			
International Paper	27 170	1	1 585
Georgia Pacific	19 614	2	1 397
Weyerhaeuser	16 178	3	1 096
Nippon Paper [a]	10 074	4	287
Kimberly-Clark	18 940	5	536
Top 5 Canadian firms:			
MacMillan Bloedel	5 254	26	279
Domtar	2 795	41	301
Abitibi-Price	2 700	42	273
Avenor	2 800	46	343
Noranda Forests	2 400	49	366

[a] Fiscal year ending March 31, 1996.

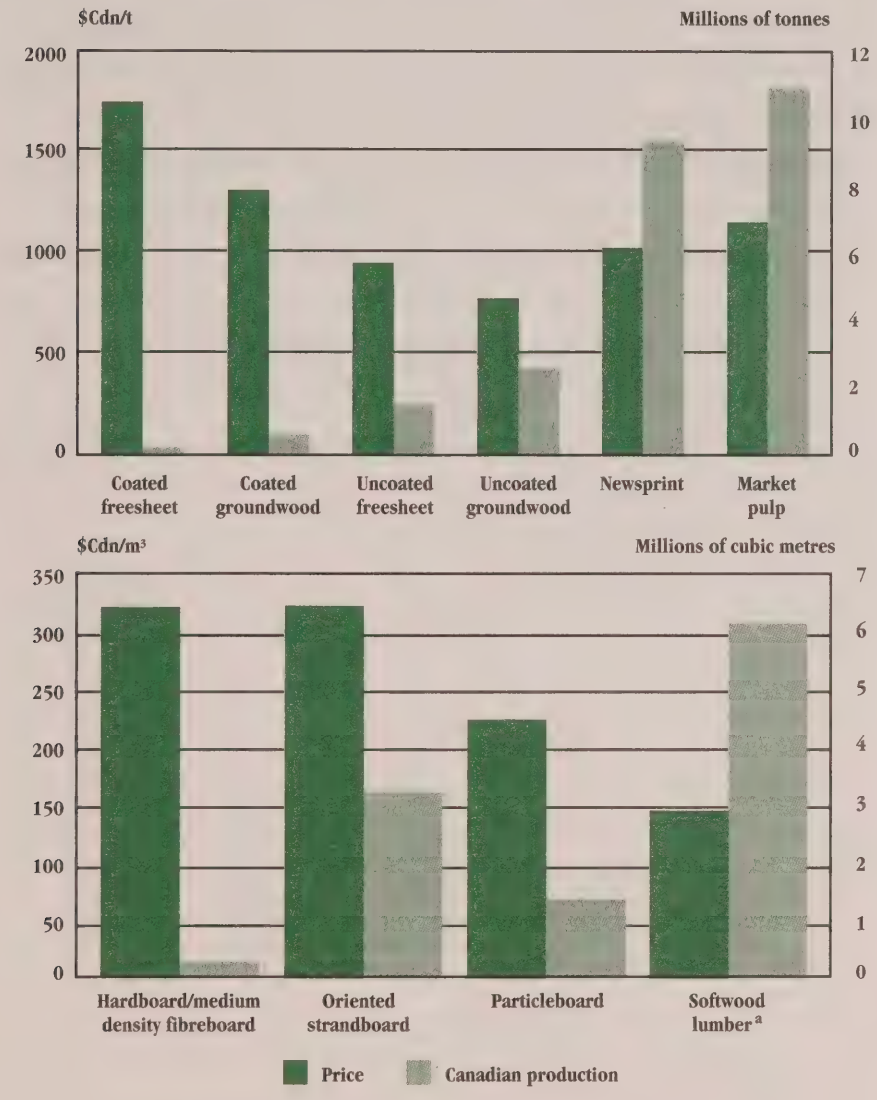
Source: Price Waterhouse, 1994; company annual reports, 1996.

Most of the country's major forest sector firms produce both wood and paper products. Since the late 1980s, wood products manufacturers in eastern Canada have been increasingly integrating with pulp and paper firms. The pulp and paper industry throughout Canada, particularly in western Canada, obtains most of its fibre needs from chips produced in sawmills as a by-product of lumber making.

Canadian industry production is oriented toward commodities

While Canada is the world's largest exporter of forest products, production is heavily oriented toward the export of commodities, which tend to have less value-added per unit of wood input. Products like market pulp, newsprint and softwood lumber account for a large proportion of Canadian production (Figure 3). Their demand and prices tend to be more cyclical than those of higher value-added forest products.

Figure 3. Inverse Relationship Between Value and Production Volume of Selected Canadian Forest Products, 1995



[a] Production of softwood lumber is ten times greater than shown

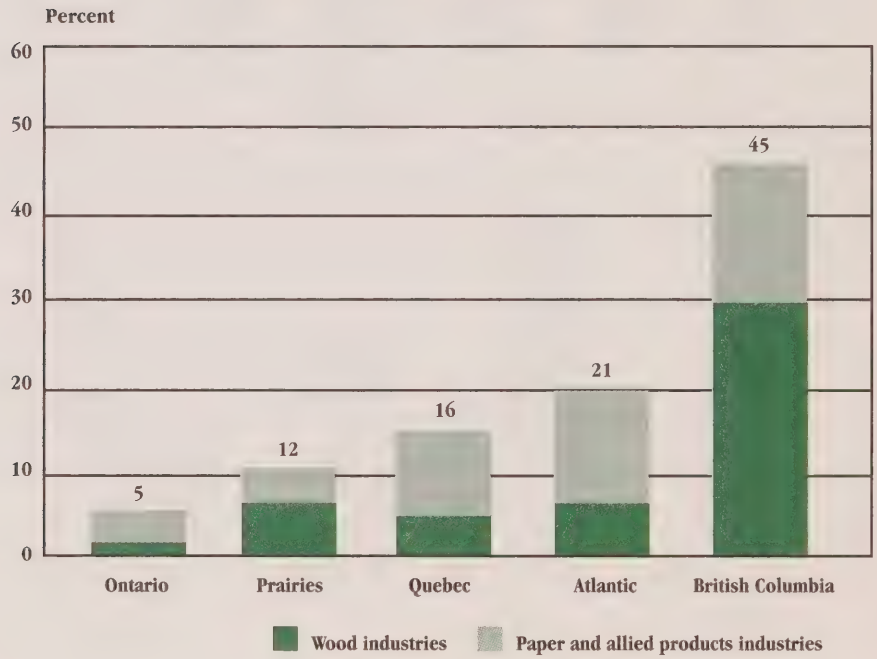
Source: Resource Information Systems Inc., 1996; Industry Canada estimates, 1996.

Mills producing commodity pulp and paper and wood products tend to be world-scale operations, and are usually located in remote communities close to forests. These producers tend to be large and integrated, with activities ranging from silviculture and harvesting to manufacturing. Producers of higher value-added products tend to be much smaller and are often located in or near urban centres.

Forest products industries provide an economic base throughout Canada

The forest products industry is an important part of the economic base of all regions of Canada (Figure 4). In terms of the contribution to provincial GDP from all manufacturing, forest products account for 45 percent in B.C. and nearly 35 percent in New Brunswick. Hundreds of communities, mainly in Quebec and British Columbia, depend directly on this industry. The forest product industries of British Columbia, Quebec and Ontario together account for 85 percent of total Canadian output, and shipments in each of these provinces exceed $10 billion annually.

Figure 4. Contribution of Forest Products Industries to Regional Manufacturing GDP, 1995



Private sector stakeholders are represented by dozens of national, regional and provincial associations across the country. The Canadian Pulp and Paper Association is national in scope and is the largest. The Council of Forest Industries (COFI) in British Columbia is the largest Canadian wood products association.

Several governments have created multi-stakeholder committees to advise them on issues of importance to the industry. At the federal level, the newly created National Sector Teams for the forest products and building products sectors will advise government on international trade issues. The Forest Sector Advisory Council (FSAC) advises government on industry issues and reports directly to the federal Minister of Industry and the federal Minister of Natural Resources. Members include chief executive officers, labour leaders, customers, suppliers and senior academics. It is co-chaired by management and labour. Representatives of environmental groups will be joining the committee soon.

The Canadian Council of Forest Ministers (CCFM) and the Forest Industries Development Committee (FIDC) undertake consultations on issues of concern to the forest sector at both the federal and provincial levels. The FSAC, FIDC and other consultative networks have proven successful in addressing sectoral issues, and are well equipped to contribute to growth-oriented, sustainable frameworks for action for the forest sector.

In 1994, the forest products industry directly employed 225 000 Canadians. A large number of jobs in other industries serve the forest products industry and are dependent on it. Estimates of the indirect employment multiplier range from 2.5 to 4. This implies that for every direct job in the industry, another 1.5 to 3 jobs are created to provide inputs for it. For example, 64 000 Canadians work in logging and forestry operations to provide the raw materials for its products. Overall, the forest products industry's activities support up to 900 000 jobs across Canada through this multiplier effect. Employment arising from the multiplier effect has special significance in single-industry towns and remote regions.

The forest products industry supports hundreds of thousands of jobs across Canada

Overall in 1994, forest products industry employment was virtually unchanged from 1984 levels. Over this period, increased employment in the wood products group offset job reductions in the paper and allied products group. For both groups, employment in value-added production fared better than that in the production of commodities.

Employment is shifting from commodity-grade to value-added products

Employment in the paper and allied products group between 1984 and 1994 fell by more than 11 percent, representing 12 800 workers, to 100 978 (Statistics Canada, Catalogue No. 31-203, 1995). Job declines in the paper group were greatest for commodities, where employment fell by 17 percent or 11 000 jobs to 67 000. Employment declines were much more modest for the value-added paper sector. Between 1984 and 1994, employment in the value-added paper sector decreased by 7 percent, representing 2500 workers, to 34 000.

Regionally, the six eastern provinces absorbed most of these job losses between 1984 and 1994, while employment in paper and allied products industries in the Prairie region and British Columbia was virtually unchanged. Employment reductions were the result of mill closures and productivity improvements that resulted in less demand for workers. Hourly operating, maintenance and administrative personnel are considered more vulnerable to employment reductions than technical and engineering staff, who are in short supply. Rationalization can severely affect communities in areas where the forest sector is the main occupation, because they are often small, single-industry towns in remote areas.

During the same ten-year span, the wood industries group increased employment by more than 15 percent, representing 16 000 jobs, to approximately 125 000. While both the commodity and value-added components of the industry experienced job creation, growth occurred primarily in the latter group. Specifically, between 1984 and 1994, employment increased by 36 percent, representing 11 000 jobs, for the value-added wood manufacturers, and only 7 percent or 5000 jobs for the producers of commodities. Makers of prefabricated wood buildings, wood windows, and doors and wood kitchen cabinets were among the value-added sectors that showed the greatest employment gains. Over the same period, at the regional level, Manitoba, Newfoundland, Nova Scotia, British Columbia, Ontario and Alberta experienced double-digit employment growth rates in the wood products sector, whereas job losses occurred in Quebec and Saskatchewan.

Aboriginal peoples see increased opportunities in the forest products industry

The forest products industry has been a significant source of jobs and business opportunity for Aboriginal peoples. In 1991, the industry employed about 2 percent of all Aboriginal workers, and 5 percent of those in British Columbia. With the advancement of Native land claim negotiations, First Nations peoples are expected to assume ownership of tracts of land and receive cash settlements, leading to significant new opportunities both in forest operations such as harvesting and silviculture and in forest products manufacturing.

The forest products industry is a high-wage employer

Wages in the forest products industry have traditionally been very high. According to Price Waterhouse (*The Forest Industry in Canada*, 1995), average industry wages and benefits amounted to $62 097 per employee in 1995, which was 55 percent above the Canadian average. The industry offers relatively long-term employment, and turnover rates are low.

The majority of workers are unionized. The major unions are the Industrial Wood and Allied Workers of Canada (IWA), La fédération des travailleurs de papier et de la forêt and the Communication, Energy and Paper Workers' Union.

2.3 Performance and Competitiveness

Although it is a mature industry and is subject to cyclical fluctuations in output and financial performance, the forest products industry has continued to grow over time. As price takers in global markets, the industry's commodity producers must maintain cost competitiveness to assure their long-term viability. While the protracted market downturn of the early 1990s triggered a painful restructuring process within the forest products industry, it has emerged more vibrant and competitive.

Competitiveness

The relative price of inputs such as wood fibre, energy, labour and transportation are key determinants of competitiveness.

Escalating wood and energy costs are eroding our traditional cost advantage

Traditionally, abundant and cheap wood and energy have been the key sources of competitive advantage for the Canadian industry. However, in recent years, these costs have increased significantly and are now close to U.S. levels in some regions. Reduced timber harvests and higher stumpage fees across Canada have led to a significant escalation of fibre costs for Canadian producers. Sharp increases in electricity costs in several provinces have brought Canadian rates more into line with those in the United States. However, U.S. mills are able to achieve major savings through co-generation; that is, by producing their own electricity and selling the surplus to power utilities. Most Canadian mills are not able to take advantage of co-generation, largely because of the reluctance of many provincial utilities and regulatory authorities to consent to such projects.

Exchange rate is a key factor

Fluctuations in the value of the Canadian dollar relative to foreign currencies are a constant factor in cost competitiveness, given the highly export-oriented nature of the industry. As a capital-intensive industry, investment patterns and financial performance are also very sensitive to fluctuations in interest rates and other factors that influence the cost of capital.

In the pulp and paper sector, Canadian mills significantly improved their productivity levels and cost competitiveness during the early 1990s. This was in large part because of closure of older, high-cost capacity during the market downturn of the early 1990s and improvements in mill efficiency and worker productivity. While this outcome has led to a more competitive and dynamic Canadian industry, it has also resulted in reductions in direct employment levels. For example, whereas Canadian newsprint output decreased by 3 percent between 1989 and 1994, industry employment declined by 24 percent. As a result of this restructuring, the Canadian industry has moved from a relatively high cost position at the beginning of the decade to being much more competitive by the middle of the decade.

"For the medium term, say, two or three years, the outlook is good."
— Kevin McElhatton, VP Economics, Canadian Pulp and Paper Association

In the wood products sector, state-of-the-art equipment and high labour productivity levels have made Canadian producers of softwood lumber and wood-based panels very competitive in the international marketplace.

For Canada's large commodity sectors, maintaining cost competitiveness is critical. Shifting production emphasis toward higher value-added products will also be key. While competitive pressures facing manufacturers of commodities resulted in job reductions, they were largely offset by employment growth as higher value-added industries expanded.

The shift to value-added products is under way

Performance

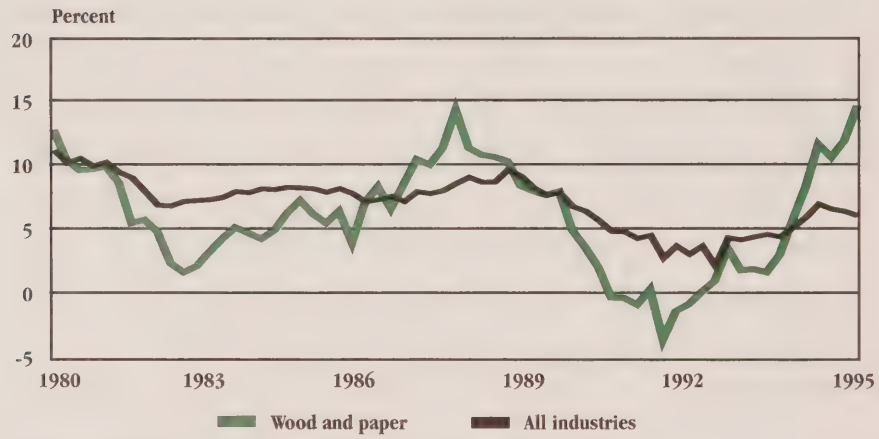
The value of forest products output has grown by 35 percent in real terms since 1972, but its contribution to manufacturing GDP has remained stable relative to other manufacturing outputs such as metals and minerals or transportation equipment. However, the output performances of the wood and paper groups differed significantly from each other. While output of paper and allied products has grown by 12 percent since 1972, output of wood products has doubled over the period.

Forest products output continues to grow

While it is difficult to abstract from the influence of fluctuations in business activity and exchange rates, statistics indicate this is an industry in a modest growth phase. The forest sector is unique among mature industries in that global demand for forest products continues to grow steadily. The opportunities created by this growth are reflected in the dynamic performance of industry sectors such as paper packaging and wood-based panels.

The financial performance of the forest products industry has traditionally varied highly with fluctuations in the business cycle. While the industry tends to be very profitable during years of economic expansion, it can suffer severe losses during periods of recession or weak product prices. Overall, the industry has shown a relatively lacklustre average rate of return on capital (Figure 5).

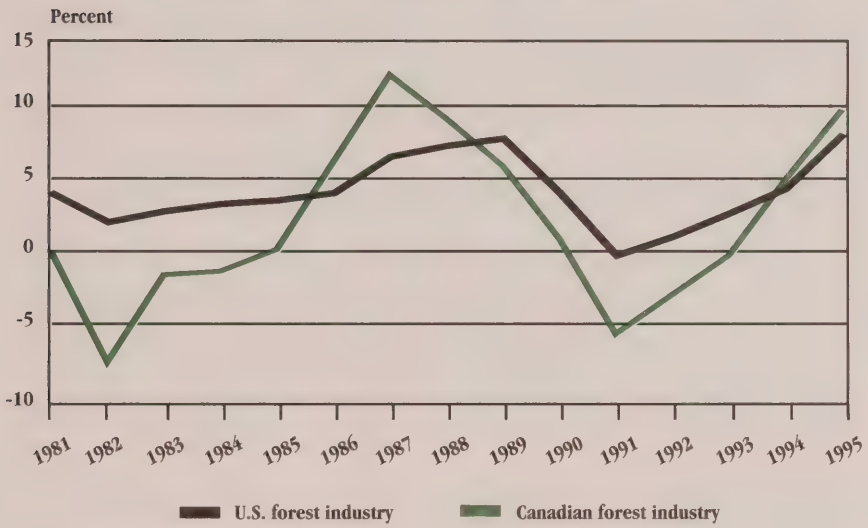
Figure 5. Forest Industries' Performance Highly Cyclical



Source: Statistics Canada, Catalogue No. 61-008, 1996.

The return on invested capital in the forest sector has generally been higher in the United States than in Canada (Figure 6). During the early 1990s, when major Canadian firms incurred substantial losses, large U.S. producers managed to maintain profitability and resist growth in debt-to-equity ratios. Over the past 20 years, before-tax capital returns have been some 35 percent lower in Canada than in the U.S. This is at least partly a reflection of the proportion of value-added and consumer products in the U.S. industry's product mix, which tends to be less cyclical and offers higher average margins.

Figure 6. Return on Assets in the U.S. Forest Products Industry Higher than in Canada



Source: Price Waterhouse, 1996.

The turnaround in prices that took place in the pulp and paper industry between late 1993 and the middle of 1995 was extreme, even by the standards of this cyclical industry. Sharply higher prices for most pulp and paper products in 1995 returned industry earnings to levels not seen since the late 1980s. However, lower consumption and an inventory buildup began to put downward pressure on pulp and paper prices in late 1995 and early 1996. There is considerable debate within the industry over whether this phenomenon represents a short-term market correction or signals the beginning of a more protracted downturn.

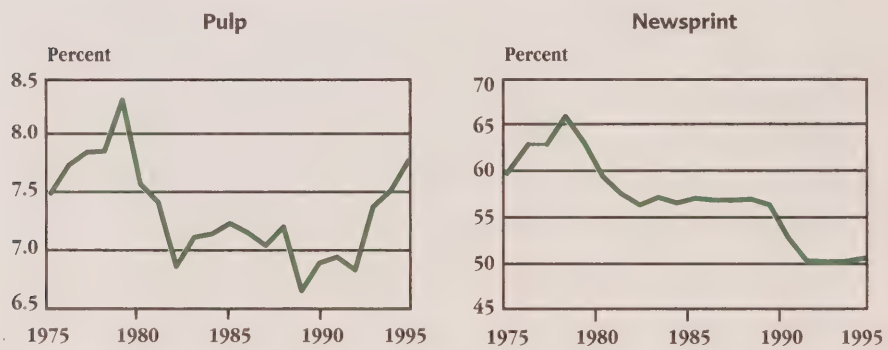
"We will not see the financial performance of 1995 repeated in 1996."
— Linn MacDonald, Vice Chair, Canadian Pulp and Paper Association

Recent earnings are strong

In the wood sector, prices for most products declined in 1995 from the peaks reached in 1994. Despite the increases in lumber prices during the first half of 1996, most observers expect sluggish demand growth and new capacity to limit price increases for most wood products over the next few years.

While Canadian market share in the U.S. for most traditional commodity exports has not grown significantly in recent years, exports of many value-added products to both the U.S. and overseas markets have enjoyed rapid growth. Canadian pulp producers have improved U.S. market penetration recently, despite the decline in the U.S. market share for both pulp and newsprint since the late 1970s (Figure 7). The decline was due largely to increased domestic capacity in the U.S., which was achieved mainly through the construction of low-cost greenfield mills in the U.S. South.

Figure 7. Canadian Share of U.S. Pulp-newsprint Markets



Source: Canadian Pulp and Paper Association, *Reference Tables*, 1995; Resource Information Systems Inc., *Pulp and Paper Review*, 1995.

Canadian softwood lumber has faced countervail action from the U.S.

Over the same period, Canadian softwood lumber producers increased their share of the U.S. market. This has precipitated allegations from U.S. producers that Canadian provincial stumpage practices provide an unfair subsidy to the Canadian industry.

More recently, Canada has enjoyed very strong growth in exports of such products as oriented strandboard and particleboard.

3 CHANGING CONDITIONS AND INDUSTRY RESPONSE

The Canadian forest products industry must continuously adapt to changes in the global business environment to maintain its pre-eminent position in competition with producers around the world. While private sector investment and innovation drive the competitive process, it is government that creates a policy environment conducive to industrial competitiveness. Public policy impacts on the forest sector in ways ranging from environmental regulation to forest management and taxation. By working in partnership with industry to deal with critical issues, government can play a key role in supporting industrial growth and job creation.

3.1 Investment and Financing

Between 1985 and 1995, forest products industry capital expenditures averaged 23 percent of total Canadian manufacturing capital spending, reaching 29 percent in 1995. This was higher than for any other manufacturing industry (Figure 8). The industry's net capital stock rose to an historic high of $31.5 billion in 1995 in real terms (as measured in 1995 constant dollars).

The forest products industry is Canada's most capital-intensive manufacturing sector

Figure 8. Canadian Forest Industry: A Leader in Business Investment

Source: Industry Canada estimates based on data from Statistics Canada, Catalogue Nos. 61-205 and 62-011, 1996.

During the 1980s, capital expenditures totalled nearly $30 billion, of which about 75 percent was in pulp and paper. In the early 1980s, maintenance and modernization absorbed the bulk of investment. In the late 1980s, greater investment emphasis was placed on expansion: 26 new paper machines and nine new market pulp mills. New capacity built in the early 1990s included five new paper machines and one new market pulp mill. New, highly efficient capacity and the closure of older and less efficient mills during the early 1990s have also enhanced competitiveness.

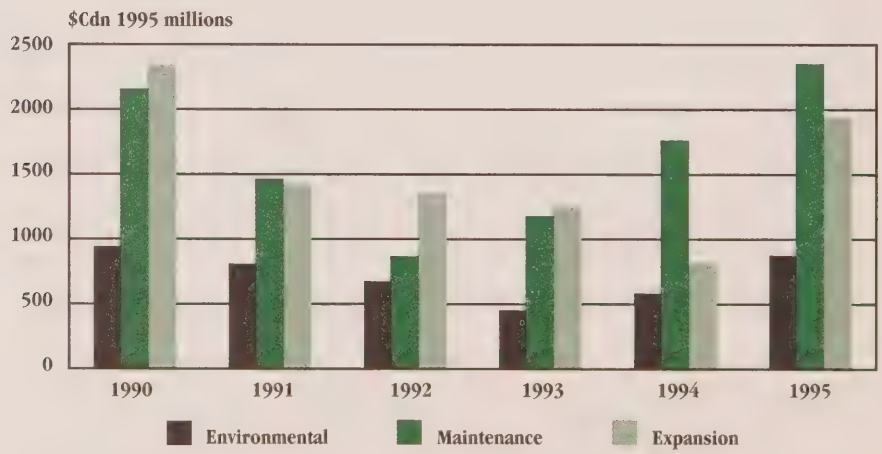
The growing demand for wood-based panels yields more than 2000 jobs

Expansions in the wood industries group have primarily occurred in plants making reconstituted wood-based panels. Since the mid-1980s, capacities for oriented strandboard (OSB), particleboard and medium density fibreboard (MDF) have grown rapidly in response to world demand. More than 2000 new jobs have been created in the wood-based panels firms through the construction of new mills or major capacity expansions at over 15 locations across the country.

The forest products industry has spent over $5 billion on the environment since 1989

Environmental expenditures as a share of total capital spending increased from 8 percent to 17 percent between 1989 and 1995 (Figure 9). The requirement to meet federal mill effluent standards was a major factor driving the rapid increase in environmental expenditures. Of the $5.6 billion in environmental investment over the 1989–95 period, $5 billion was required to meet these standards.

Figure 9. Distribution of Forest Products Capital Expenditures



Source: Price Waterhouse, *The Forest Industry in Canada*, 1995.

In line with fiscal restraint and to resolve subsidy distortion and inequity, the federal government in 1987 introduced a Forest Industry Policy that effectively eliminated federal assistance for capacity expansion and modernization utilizing conventional technology in the forest products industry.

The forest products industry offers market potential for Canadian equipment suppliers

Over 50 percent of all forest products industry machinery and equipment is currently imported from abroad. For pulp and paper, such imports exceed domestic supply by a margin of about 2:1. This situation represents an opportunity to grow a larger domestic equipment supply industry, including the environmental technologies subsector.

Capital expenditures in the forest industry, like its financial performance, are highly cyclical. In 1995, Statistics Canada (Catalogue No. 61-205) reports that forest products industry capital expenditures increased to $4.9 billion, their highest level in real terms since 1990. After experiencing a cyclical decline in the early 1990s, capital expenditures in the paper and allied products sector increased by 84 percent in 1995. For the wood sector, capital expenditures more than doubled between 1992 and 1994 and increased by another 25 percent in 1995 to exceed $1.4 billion.

Investment should continue for the duration of global economic expansion

The medium- to longer-term outlook for industry capital expenditures depends in large part on the strength and duration of the current global economic expansion. Should the world's major economies continue to grow at a moderate rate for the next few years, forest products demand and prices should remain strong enough to attract significant amounts of new investment into the Canadian industry. However, many observers expect the pattern of capital expenditures in the industry to be different from that in the past. Whereas a large portion of new investment during the 1980s was directed toward greenfield expansions in commodity product lines, fibre scarcity and other constraints are likely to restrain capacity expansion throughout the remainder of this decade. In the capital-intensive pulp and paper sector, few major expansion projects are under consideration in Canada, and many large firms have been using improved cash flows to pay down debt.

There were several major mergers and acquisitions within the Canadian industry in 1995. The trend toward greater industry consolidation seems likely to continue.

Many observers also expect a larger proportion of new investment to be directed toward modernization and conversion projects at existing mills. There are currently several examples of such investments taking place in Canada, including the conversion by MacMillan Bloedel of a paper machine at its mill in Port Alberni, British Columbia, from newsprint to lightweight coated paper.

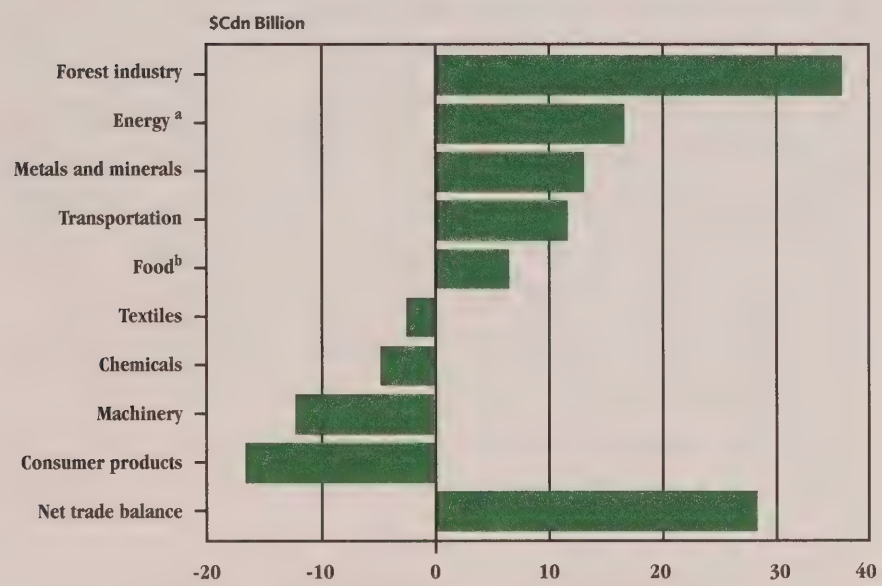
The cost of capital facing Canadian forest products firms has historically been high relative to both U.S. competitors and other major industries in Canada. While high capital cost deters all investment, its impact on long-term investment such as plant modernization and conversion is especially severe. For this reason, minimizing the differential between the cost of capital in Canada and the U.S. is of particular importance to the forest products industry.

3.2 Trade

The forest products industry makes an enormous contribution to Canadian living standards and economic well-being through its export performance. The forest products industry is consistently the largest contributor to Canada's trade balance. In 1995, its net exports totalled $35.2 billion, which considerably exceeded Canada's total merchandise trade surplus (Figure 10).

The forest products industry is the largest contributor to Canada's merchandise trade balance

Figure 10. Forest Products Industry: Leading Contributor to Canada's Net Trade Balance, 1995



[a] Energy includes electricity, petroleum, coal and natural gas.

[b] Food includes wheat and other farm and fish products.

Source: Industry Canada estimates based on data from Statistics Canada, Catalogue Nos. 65-007 and 65-004, 1996.

Increased foreign market demand has fuelled most of the industry's growth. Exports in 1995 amounted to $41.1 billion or 72 percent of total industry shipments. The pulp and paper sector accounted for 65 percent of the total, with the wood industry making up the balance.

While forest products industry exports grow, Canada still imports high value-added consumer items

Total forest products imports amounted to $6.7 billion in 1995. This figure includes imports of wastepaper, logs and other inputs needed by the Canadian forest products industry. While very small relative to exports, imports do comprise a significant share of the domestic market for several higher value-added products such as paper consumer products and stationery.

New trade agreements improve market access, but barriers remain for high value-added products

While multilateral negotiations have succeeded in significantly reducing tariffs in many markets, various forms of non-tariff barriers present a significant impediment to expanded trade in forest products.

Under the World Trade Organization (which replaces the General Agreement on Tariffs and Trade), the United States, the European Union, Japan and the Republic of Korea will eliminate all tariffs and non-tariff barriers on pulp and paper products over ten years beginning January 1, 1995. European countries, Japan and the Republic of Korea have also agreed to reduce wood product tariffs by 45–50 percent. Canadian firms should also benefit from the new rules and procedures of the World Trade Organization (WTO) to eliminate some technical standards and regulations acting as trade barriers. Despite this progress, non-tariff barriers continue to be important impediments, and tariffs remain high for forest products in some countries, particularly for higher value-added products.

NAFTA opens new markets . . .

Wood pulp, newsprint, lumber and wood panels have long enjoyed tariff-free access to the U.S. market. The Canada–U.S. Free Trade Agreement eliminated tariffs on value-added paper and building products. The North American Free Trade Agreement (NAFTA) among Canada, the United States and Mexico will eliminate all tariffs on wood products as well as on all pulp and paper products by 2003. To date, Canadian exports of wood and paper to Mexico have been limited; however, with improved access under the NAFTA, significant growth, particularly in building products, could be realized.

Despite progress made toward opening markets through multilateral trade agreements, recent frictions over Canadian softwood lumber exports to the United States illustrate that these agreements do not always guarantee unfettered access to foreign markets. In many cases, non-tariff barriers are more significant impediments to international trade than tariffs. For example, major non-tariff barriers in European and Japanese markets include environmental demands and technical requirements such as codes, standards and eco-labelling.

. . . but frictions remain

Allegations of unfair subsidization through low stumpage fees have been made against Canadian softwood lumber producers since the early 1980s. In early 1996, an agreement was reached between the two countries to prevent any further trade actions by the U.S. against Canadian softwood lumber imports for a period of five years. In the agreement, which includes the major softwood lumber producing provinces of British Columbia, Alberta, Ontario and Quebec, fees will be levied on softwood shipments exceeding 14.7 billion board feet (34.69 million cubic metres) in a given year. Provincial governments involved in the agreement will be the recipients of the fees. Atlantic Canada, Saskatchewan and Manitoba are exempt from the requirements of the agreement; however, the Atlantic provinces must certify their exports as originating from logs harvested in the region.

Government and industry are working together to remove non-tariff barriers

The federal government, in partnership with other industry stakeholders, is working to maintain or expand market access for Canadian producers by resolving non-tariff barriers wherever possible. For example, talks have been under way between Canada and Japan on the mutual recognition of building products standards since 1994. Among other things, these talks have addressed issues such as the acceptance of Canadian standards by Japan and the accreditation of Canadian testing organizations by the Japanese Ministry of Construction.

There are several partnership agreements involving the provincial and federal governments and segments of the forest products industry. Their purpose is to develop and diversify export markets for wood products and to maintain access for all Canadian forest products in export markets.

"We have a wave of democratization and free markets in places like Asia and Latin America, and those events are stimulants to newsprint demand."
— Hamish Kerr, industry analyst, Goepel Shields & Partners

Given that nearly three quarters of its $57 billion in shipments were exported in 1995, the Canadian industry's fortunes are closely tied to economic trends and other developments in major markets abroad (Table 3).

Table 3.
Canadian Forest Products Exports, 1995

Export market	Share of total exports (percent)	Real average annual growth, 1988–95 (percent)
United States	66.2	4.86
European Union	11.3	1.03
Asia Pacific	18.89	8.84
Latin America	2.27	10.12
Rest of the world	1.34	7.87
Total	100.0	4.65

Source: Industry Canada estimates based on data from Statistics Canada, Catalogue Nos. 65-004 and 62-011, 1996.

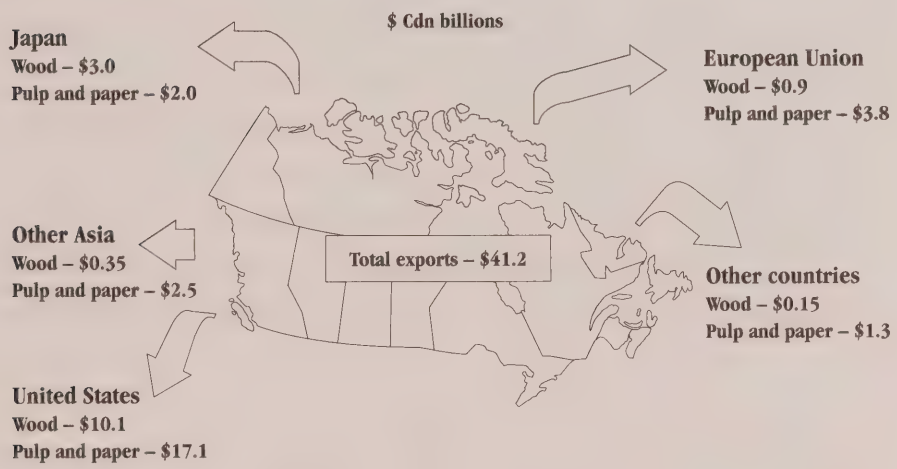
Moderate growth is expected in exports to traditional markets

Over the past two decades, exports to the U.S. have consistently accounted for between two thirds and three quarters of Canada's total forest products industry exports. Exports to the U.S. of several wood and paper products have enjoyed strong growth over the past few years. While Canada may see its share of the U.S. softwood lumber market decrease as a result of the recent trade dispute, prospects are good for continued growth in other product areas.

Strong export growth to Japan since the early 1970s has resulted in its displacing western Europe as Canada's second largest export market. While the bulk of exports to Japan have traditionally been made up of commodity wood products, several value-added building products have recently experienced strong export growth. In 1995, Canada became the largest exporter of manufactured housing to Japan, with export growth of nearly 200 percent since 1992.

Although it has slipped to third place as a destination for Canadian forest products exports, Europe remains an important but fiercely competitive market for Canada. In 1995, pulp and paper products made up about 80 percent of the $4.7 billion in Canadian forest products exported to member countries of the European Union (Figure 11). The dynamics of this market changed significantly with the accession of two major forest products producers, Sweden and Finland, to the European Union in 1995.

Figure 11. Canadian Forest Products Export Markets, 1995



Source: Statistics Canada, Catalogue No. 65-004, 1996.

Canada expects to export more to developing regions

Exciting opportunities exist in the Asia Pacific region . . .

As the fastest-growing market for forest products in the world, the Asia Pacific region, already a major market for Canada, holds tremendous opportunity. The exact nature and magnitude of these opportunities will be determined in large part by the extent to which this region will be able to satisfy its own demand through capacity expansion.

. . . and Latin America

A combination of strong economic growth and trade liberalization has created new opportunities for the Canadian forest products industry in Latin America. Increased housing demand should create export growth for wood structural products such as windows, doors and prefabricated housing. While the sharp devaluation of the Mexican peso in December 1994 contributed to an economic slowdown that dampened import demand across the region, it remains a market with considerable long-term potential. At the same time, competition from domestic producers and U.S. exporters will be intense.

3.3 Human Resources

Industry must ensure labour training is in step with advances in technology

To take full advantage of state-of-the-art technologies, forest product firms need to complement their investment in equipment with investment in human capital. The rapid pace of technological change and automation within the forest products industry has led to continuous increases in the skill requirements for workers in the industry. Within the industry, recognition is growing that adequate training is key to productivity and quality, and that training must match technology for its effective implementation.

Skilled workers are in high demand

Both the wood and paper sectors of the industry have experienced shortages of highly skilled specialists. This problem is particularly acute in remote areas. Although the pulp and paper programs existing at four Canadian colleges and four Canadian universities are well regarded, they produce only about 100 graduates a year. Industry surveys demonstrate that more graduates from programs specific to pulp and paper are needed. In the wood sector, studies have indicated that the industry faces a shortage of wood processing engineers and other professionals. At times, the Canadian industry has had to hire foreign-trained specialists to meet these needs.

National Education Initiative: An innovative human resources initiative

Industry Canada has been a full partner in recent efforts under the National Education Initiative to design new education and training programs at the high school, college and university levels that are focussed on industry needs. The University of British Columbia's National Advanced Wood Processing Centre is an example of such an initiative. Modelled after the world-renowned Fachhochschule Rosenheim of Germany, it offers Canada's first graduate program for wood processing engineers. The school began accepting students in the fall of 1995, and will initially graduate approximately 50 students per year, trained in the latest and most needed skills in the manufactured wood products sector. Extensive input has been sought from the private sector on the design of the program. In addition, New Brunswick and British Columbia are developing college-level programs to link into the National Advanced Wood Processing Centre. At the high school level, the British Columbia High School Education Initiative has increased industry awareness among students and teachers.

The NEI trains students to match industry requirements

These educational initiatives serve as useful illustrations of a cooperative effort by industry, academia, the federal government and other stakeholders to identify specific training gaps and to develop an appropriate study program based on the best of foreign experience. The long-term goal of such programs is to supply the forest sector with a highly trained, efficient and adaptable work force.

3.4 Technological Change

Canada's investment in R&D needs to increase

Expenditures for research and development (R&D) in the forest sector are relatively low, at about 0.3 percent of sales compared with 0.8–1.1 percent of investment among our major competitors. Increased R&D investment is required to achieve productivity growth, improve wood and energy use efficiency, develop higher value-added products, apply advanced manufacturing processes and find economic and socially acceptable solutions to environmental problems.

R&D is conducted across Canada in companies, universities and institutes

Forest sector R&D is carried out by many companies in the industry and related supplier industries. Several major companies including MacMillan Bloedel, Abitibi-Price, Noranda and Domtar maintain research centres. In addition, a number of universities, including Laval, Université du Québec à Trois-Rivières, as well as the universities of British Columbia, New Brunswick and Toronto conduct research in the forest sector. There are also three industrial research institutes, the Pulp and Paper Research Institute of Canada (PAPRICAN), the Forest Engineering Research Institute of Canada (FERIC) and Forintek Canada Corp., which serve the industry. Specific goals are to improve productivity, develop value-added products and resolve environmental problems through new products and processes. Examples are PAPRICAN's technologies to replace chlorine bleaching and the development of closed-cycle systems for pulp and paper mills. Government silvicultural research is undertaken by provinces and the Canadian Forestry Service.

3.5 Sustainable Development

Great strides are being made in environmental performance

The forest products industry has made considerable progress in reducing environmental impact. For example, in the pulp and paper sector, new treatment processes have substantially reduced harmful discharges. Dioxin and furan discharges have declined by 98 percent since 1988, and are now virtually eliminated. Between 1970 and 1993, whereas production increased,

biochemical oxygen demand (BOD) declined by 75 percent, total suspended solids (TSS) discharges fell by 85 percent and water usage dropped by nearly 60 percent. In the wood products sector, more stringent standards and new technologies have reduced polluting air emissions considerably.

Stronger federal and provincial laws ensure environmental responsibility

In addition to revamping environmental impact assessment for new mills, federal and provincial governments have recently strengthened existing mill effluent regulation. As of January 1, 1994, pulp and paper mills are required under the *Canadian Environmental Protection Act* to reduce effluent dioxin and furans to non-measurable levels. New federal *Fisheries Act* regulations raised mill effluent standards further by the end of 1995. As a result, Canadian standards are now as stringent as or more so than those in Europe and the U.S.

Federal and provincial environmental standards are world class

Environmental quality objectives, guidelines, codes of practice, voluntary agreements and economic instruments are increasingly being used to achieve environmental goals. Rather than prescribing behaviour, economic instruments act as incentives to encourage new, more environmentally friendly products, processes and technologies that satisfy both domestic and global market concerns. These have the capacity to protect the environment as well as or better than regulation while lowering enforcement and compliance costs.

Of the 418 million hectares of forested land in Canada, a little more than half is considered capable of producing commercial timber. About 119 million hectares are currently managed for timber production. A further 156 million hectares, found mostly in northern Canada and composed of muskeg, small trees and shrubs, are "open" forests likely to be left in their natural state. About 6 percent of forest land is protected from harvesting by law and an additional 6 percent by public policy. Provincial governments are committed to protecting an additional 6 percent by the year 2000. For example, in British Columbia, over 80 new parks have been created since 1992, and almost 9 percent of the province's forest area is fully protected by law. This compares well with the 2–3 percent protected level in countries such as Sweden and Brazil.

Most Canadian forests are provincially owned

In contrast to forest ownership in most other major producing countries, only about 6 percent of Canada's forests are privately owned (by some 425 000 private landowners). The remainder is largely owned by provincial governments. Canada's forest resources thereby stay primarily under Canadian ownership, and governments are able to control forest management through tenure agreements that strictly regulate harvesting and silviculture. Forest companies leasing public lands must assume responsibility for regeneration to maintain or improve pre-harvest production capacity.

Forest management is based on the principle of sustainable development

Government policies and tenure systems are based on the principle of sustainable development so that timber is not depleted at rates exceeding regrowth capacity. An annual allowable cut (AAC) is established for each species, based on its growth potential in specific forest management areas in all provinces. Although harvesting may be perceived by the public as the most important perturbation of the natural forest, the combined effect of fire, disease and insects is more significant and is taken into account when establishing the AAC. As a result, the total net change in the Canadian forest stock increased at an annual average rate of 67 million cubic metres between 1978 and 1993.

Governments, forest sector companies, woodlot owners, conservation groups, Aboriginal peoples and individuals are among the major stakeholders involved in forest issues. Research and new technologies are improving forest management practices. Forest inventories are being improved, and adverse impacts on soil, water and wildlife are being addressed. A variety of mechanisms such as land-use planning and intensive forest management are being implemented to solve user conflict.

Is the present tenure system conducive to efficient management and continued investment?

Regarding the tenure system, while various proposals have been made to improve its efficiency, forest management is an extremely complex process that involves balancing numerous social, economic, environmental and biological factors. While tenure systems vary from province to province, some observers argue that most do not create sufficient incentives to encourage investment in forest management. In addition, tenure arrangements can produce uncertainty over future timber allocations and thus deter investment.

4 GROWTH PROSPECTS

4.1 Demand Outlook

While global demand for forest products continues to grow, Canadian producers must adapt to a changing marketplace to benefit from these new opportunities. In the pulp and paper sector, new information technologies and consumer demand for continuous improvements in environmental performance are among the key challenges confronting the industry. At the same time, the wood industry faces stagnant North American demand as well as competition from metal and other non-wood products.

Publishing, packaging and office supply firms all face pressures that could substantially change forest product demand. Electronic communications, the need to lower input costs and demand for environmentally friendly products also could have a significant impact on the industry.

The electronic information age impacts on patterns of paper consumption

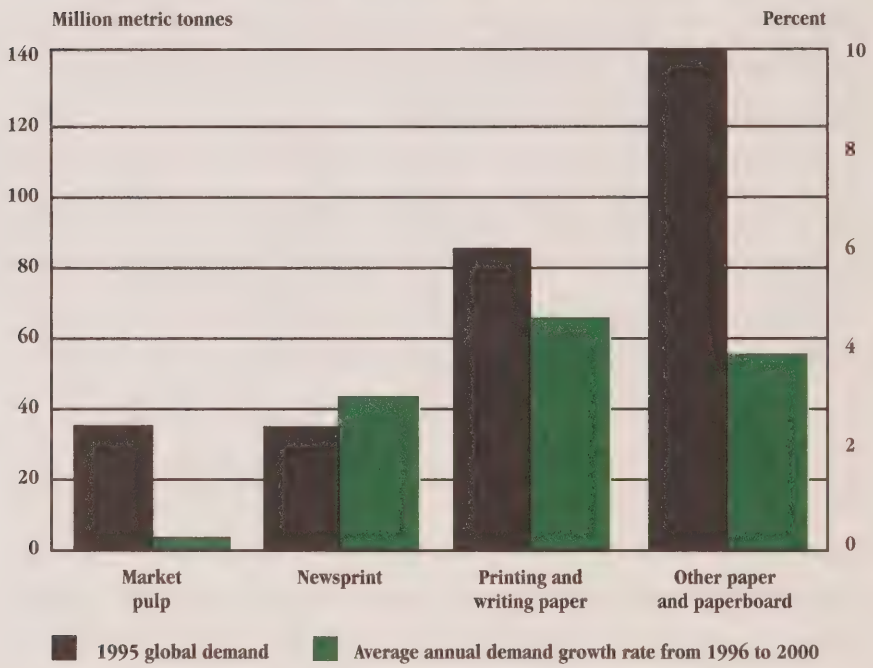
New business systems and office automation are changing paper markets. Office technologies, such as laser and ink-jet printers are increasing demand for cut bond paper while reducing use of continuous form paper. While the proliferation of computers, faxes and other technologies has created new business paper demand, technologies such as E-mail, CD-ROM and Electronic Data Interchange may reduce paper demand.

Major North American newspaper chains such as Southam and the Times Mirror company are switching to central buying to reduce costs. Newspaper consolidation is further strengthening buying power. Newspaper size has also been reduced as an economizing measure, further reducing demand.

Expanded access to electronic information such as Internet and interactive television will have a significant impact on print media. New electronic media will provide intense competition for advertising revenues and direct information services to such traditional print media as newspapers and magazines.

A move by publishers toward wider distribution using on-line services or developing interactive television may impact demand for newsprint and coated papers. While observers disagree on the timing and impact of electronic media, competition for consumer and advertising dollars will intensify over time. These forces could lead to a fundamental restructuring of the paper segment of the forest products industry.

Figure 12. Demand for Value-added Papers Growing Strongly



Source: Resource Information Systems Inc., *Pulp and Paper Review*, 1996.

Growing environmental awareness is creating opportunities and challenges . . .

During the first half of the 1990s, the Canadian forest products industry has had to deal with such issues as consumer demands for recycled content and stricter effluent regulations. Greater environmental awareness has created opportunities as well as challenges for the industry. For example, packaging producers have benefited from a switch to recycled paper packaging from

disposable plastic by major buyers. During the second half of this decade, key environmental challenges will likely include the development of zero-effluent "closed-loop" mills, reduction of mill air emissions and solid waste management associated with recycling.

. . . and increasing pressures on the forest sector to improve forest management

To maintain the confidence of its customers, the forest products industry must communicate its successes in dealing with environmental challenges to consumers both at home and abroad. Forest products consumers around the world are becoming increasingly conscious of forest harvesting and management practices. In response to consumer demands for assurance of sustainability in forest harvesting practices, a new Canadian standard to certify sustainably managed forests is being developed. Efforts are under way to ensure that this standard will be harmonized with those of other countries so that a globally recognized standard can be agreed upon.

Public demand for assurance of sustainability in forest management is increasing

Economics and demography are reducing Canadian residential construction activity . . .

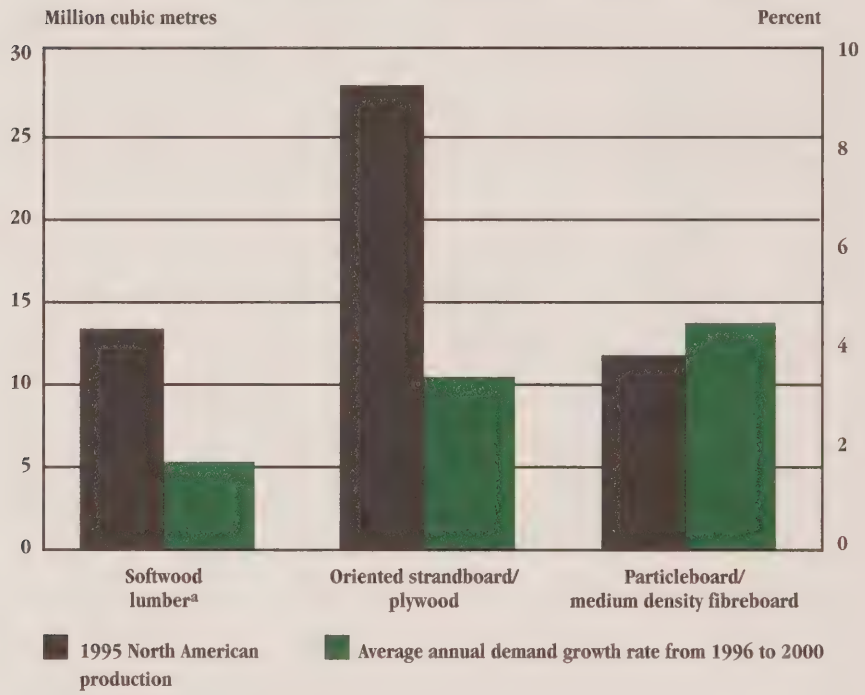
Residential housing is a key determinant of wood product demand. About two thirds of softwood lumber and structural panels are used in residential construction, repairs or remodelling. North American housing starts hit record levels in the 1980s and then declined during the 1990–91 recession. Recent high softwood lumber prices have prompted increased interest in steel and other non-wood substitutes. Overall, a combination of demographic and economic changes in society has resulted in fewer housing starts during the 1990s than in the 1980s. This trend has been particularly pronounced in Canada, where housing starts in 1995 reached only 111 000 units, their lowest level since 1960.

. . . but increasing export market development is taking up the slack

Weak levels of residential construction activity have prompted many Canadian producers of primary and value-added wood products to pursue export opportunities more aggressively. For example, the Canadian wood kitchen cabinet industry has historically been focussed almost exclusively on the domestic market. However, exports reached 23 percent of total industry shipments by 1995, which helped to offset slowing domestic demand.

The aging of the North American population is giving rise to uncertainties about new housing demand and consequent demand for lumber and wood products for the next two to three decades (Figure 13). However, demand for wood products is expected to be sustained, at least in the short term, by a growing preference for larger houses and by an increase in housing repair and remodelling activity.

Figure 13. North American Production of Wood Products



[a] Demand for softwood lumber is ten times greater than shown.
Source: Resource Information Systems Inc., 1996.

Furniture production is of particular importance to the particleboard and medium density fibreboard industries. Canadian furniture shipments declined through 1990–93 after growing throughout much of the 1980s. With improved domestic demand and a more favourable exchange rate, the Canadian furniture industry is poised for export growth. However, given the rapid pace of capacity expansion among manufacturers of these panel products, domestic demand growth will be insufficient to absorb new production capacity, and Canadian producers will need to develop new export markets.

Long-term Fundamentals

Future forest product demand will depend on three major factors or long-term fundamentals:

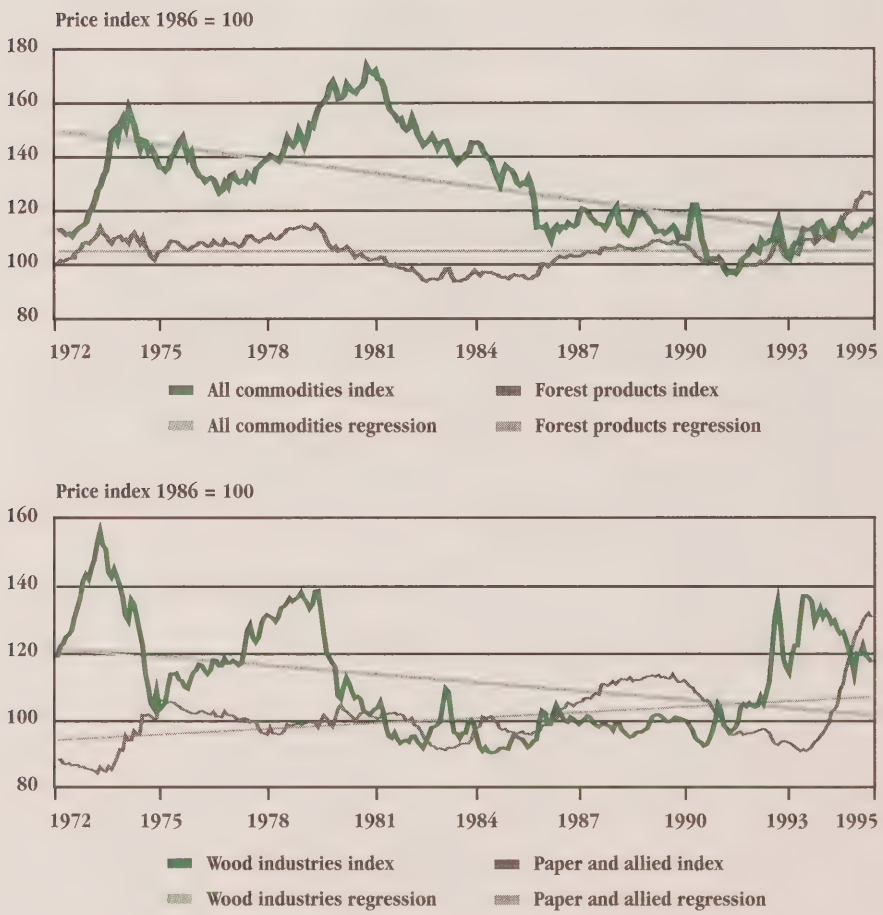
- the vulnerability/sensitivity of the sector to fluctuations in the business cycle
- changing patterns in global demand
- industry investment to improve productivity, respond to new market opportunities and address environmental pressures.

Forest products, particularly commodities, are highly sensitive to economic fluctuation; profits tend to exceed the manufacturing average during booms and lag below during troughs. The 1990–91 recession brought on prolonged weakness, and this has been followed by a period of high real prices and strong industry earnings.

Real forest product prices are holding their value over time

The forest sector continues to be highly dependent on commodity products. However, their prices are considerably less volatile than those for most other Canadian commodity products that trade in world markets, for example, oil, natural gas, wheat, cattle, nickel or copper (Figure 14). Forest products have also sustained their value in real terms, whereas the prices for commodities overall have experienced secular decline. Within the forest products industry, real wood prices have decreased since 1972, while paper products have increased in value. Prices for paper products, which tend to have greater value-added content than wood products, are also more stable over time.

Figure 14. Price Trends for Forest Products Versus all Commodities in Real Terms



Source: Industry Canada estimates based on data from Statistics Canada, Catalogue No. 62-011, 1996.

An unprecedented surge in pulp and paper prices took place in the 1994–95 period. Although they have begun to weaken, they remain high in real terms. Wood prices peaked in 1994 and declined considerably in 1995, although they remain high relative to their levels throughout most of the 1980s.

Canada faces new competition from fast-growing forests in Chile, New Zealand and Australia . . .

Looking to the longer term, however, there are a number of market uncertainties. New hardwood and softwood sources are being developed in Australia, New Zealand, Chile, Venezuela, Indonesia and Argentina. Fast-growing, low-cost, plantation forests being developed in Chile, New Zealand and Australia are expected to double the annual allowable cut of these countries in 16 years.

. . . and, in time, the former Soviet Union

The vast, largely untapped softwood forests of the former Soviet Union (FSU) also pose a potential threat, but could also represent an opportunity. Wood products exports from the Baltic states have begun to erode Canadian market share in Europe. The bulk of the FSU's forest resource lies in Siberia and the Russian Far East, where Asian, European and American investors have begun to explore its commercial potential. It is estimated that the former Soviet Union accounts for 57 percent of the world's commercial softwood forest. Because of its expertise in managing and operating in boreal forests, the Canadian forest sector could also take early advantage of this opportunity to secure additional fibre supply and expand its investments abroad. While Canadian softwood is of higher quality, the new Russian sources could significantly expand market supply. However, because of Russia's difficult economic and political transition and the limited infrastructure in large parts of the country, many observers believe that it will be at least 15 years before the forest resource of this region has a significant impact on global markets.

World demand will continue to grow . . .

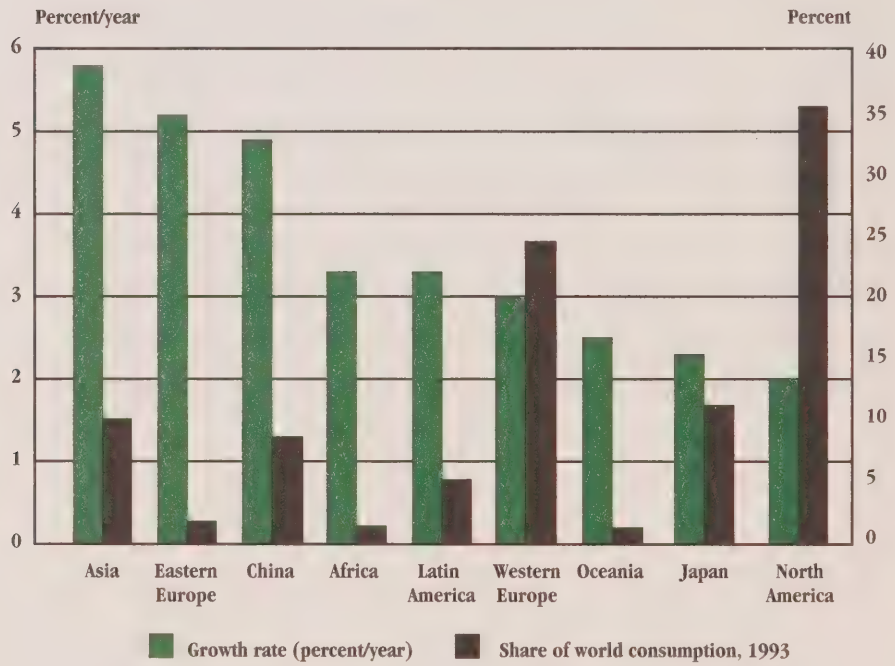
In global terms, demand for forest products is likely to continue growing over coming decades. Between 1950 and 1990, world consumption of timber more than doubled. Continued global population growth combined with rapidly rising incomes in Asia and other world regions are expected to lead to further

increases in timber demand. A forecast by the United Nations' Food and Agriculture Organization (*Forestry Statistics Today for Tomorrow*, Rome, 1995) predicts that industrial timber demand will increase by 56 percent between 1993 and 2010. The resulting growth in global timber consumption would be roughly equal to Quebec and New Brunswick's combined current annual harvest each year for 17 years.

. . . especially in Asia and Latin America

Growth in paper demand will be strongest in developing nations, especially those in Asia and Latin America (Figure 15). Developed countries will experience below-average growth. Products like fine papers and paper packaging are expected to account for the greatest growth in paper demand.

Figure 15. Projected World Paper Demand Growth 1993–2000



Source: Jakko Poyry Consulting Inc., presentation by James McWatt to the Canadian Pulp and Paper Association Open Forum, Montreal, January 30, 1996.

Productivity growth in mature industries like the wood and paper sectors is generally lower than that of newer, emerging industries. Most broad measures of productivity growth such as Statistics Canada's indices of multifactor productivity (Catalogue No. 15-204E) show that the wood industry has managed to achieve a rate of productivity growth slightly in excess of the average for all Canadian industries over the past 20 to 30 years. By contrast, the productivity performance of the paper and allied sector has been well below average. However, investment in research and human capital could accelerate productivity growth and stimulate new product development.

4.2 Key Industry Strengths

The Canadian industry enjoys many key strengths

Generally, the outlook for future growth of the Canadian forest products industry appears strong because of:

- its access to a vast, renewable, high-quality, fibre resource with growth potential
- growing global demand for forest products
- new forest management codes for sustainable development
- globally competitive, Canadian-owned firms with established export markets and improved access under the NAFTA and the WTO
- the continuing cost-competitiveness of manufacturers of commodity products and the rapid expansion of firms in value-added subsectors
- Canada's world-class forest products research and educational institutes
- the streamlined federal/provincial environmental review and their world-class effluent regulations.

While their recent performance has been very strong, Canadian producers of newsprint, softwood lumber and market pulp, the leading export products by value, can expect increasing challenges from emerging new capacity over the mid- to longer term. As North American demand growth slows, the producers of commodity products need to develop new overseas markets and to shift emphasis toward higher value-added product lines. Improved performance in such areas as forest management, R&D, technologically advanced processes, training and skills development will support the required change process.

Canadian firms have yet to achieve the scale and specialization economies of their larger U.S. competitors for several value-added wood and paper products. U.S. firms also have the advantage of greater access to power co-generation and more electric utilities that offer off-peak rates.

Challenges include maintaining cost competitiveness and adding value

Industry weaknesses include rising input costs and reduced annual allowable cuts in many regions of the country. These competitive pressures provide an incentive to add more value to each available unit of wood resource. Also, the high-quality northern fibre gives Canada a unique advantage in making such products as coated freesheet and lightweight coated paper.

4.3 Current and Anticipated Challenges

Threats to Canada are new competitors and information technology

Future competitive threats will arise from new competition from non-traditional producing areas like Indonesia, Thailand, the Republic of Korea and Malaysia. These nations have substantial paper capacity expansions under way or announced, which may displace Canadian exports to the Asia Pacific region. In addition, these greenfield plants will be very cost competitive; they will be world-scale plants operating with lower labour costs. In time, they could displace Canadian exports in other markets. Although these rising nations are currently net importers of pulp and paper, they could quickly became net exporters if regional supply surpasses demand during the next economic downturn.

While global consumption of paper and paperboard will continue to grow, the pattern of demand for paper products will undoubtedly change with developments in electronic media. As a result, traditional markets in North America, Europe and Japan are likely to be the first to feel the impact of new technologies.

4.4 Future Opportunities

Research by Industry Canada indicates that the nation's manufacturers of higher value-added wood and paper products are competitive on the world market. The high fibre quality of their products, the cost competitiveness of their plants and their access to major world markets make them attractive to new investment.

Canada remains an attractive location for new investment in the industry

For wood products, the best potential for developing trade lies in the priority markets of the United States, western Europe, Japan and other Pacific Rim countries. Future opportunities will likely arise through the following strategies:

- building on Canada's vast renewable forest resource, develop new markets and products that maximize economic returns from this high-quality asset
- striving to shift from a commodity focus to differentiated products that command premium prices
- reducing the degree of dependence on the U.S. market through enhanced market development activities
- taking advantage of established markets and the preferential market access gained through the NAFTA to develop markets for new customer-focussed products
- cultivating the image and reality of environmental responsibility to assure market access and consumer acceptance
- building on the superior performance (e.g. seismic resistance) of wood frame construction, particularly in the Pacific Rim market and eastern Europe.

The Pacific Rim presents major opportunities

4.5 The Bottom Line

Adapting products to progressively higher customer expectations, developing new products and identifying new markets will be key. To satisfy regulatory requirements and public pressure, the industry will have to ensure that practices are environmentally responsible and are perceived as such.

While competition in the global forest products industry is intensifying, opportunities abound. Despite trends like the onset of the paperless office, the past 15 years have included some of the strongest growth periods in the history of paper. Given projections of trends in global income and population growth, there is every reason to believe that paper demand will continue to grow well into the future. Similarly, an emerging global focus on housing is creating unprecedented opportunity for Canada to emerge as a dominant exporter of housing and wood building products. By adapting to change, the forest products industry can continue to be as central to Canada's development during the 21st century as it has been in the 20th.

This Sector Competitiveness Frameworks document on *Forest Products: Part 1 — Overview and Prospects* has been prepared as a basis for further discussion of issues and resolutions with key stakeholders. The outcome of the discussions will be published in *Part 2 — Framework for Action*.

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Annex A
THE CANADIAN FOREST PRODUCTS INDUSTRY AS DEFINED IN STATISTICS CANADA'S 1980 STANDARD INDUSTRIAL CLASSIFICATION (SIC)

MAJOR GROUP 25 — WOOD INDUSTRIES

2511 — Shingle and Shake Industry

Establishments primarily engaged in manufacturing wooden shingles and shakes including those that are hand-split and resewn, tapered and straight split. Establishments primarily engaged in manufacturing asphalt shingles are classified in 2721 — Asphalt Roofing Industry.

- Shakes, splitting
- Shakes, wooden
- Shingles, sawing
- Shingles, wooden

2512 — Sawmill and Planing Industry (Except Shingles and Shakes)

Establishments primarily engaged in sawing and planing lumber from round wood. Establishments primarily engaged in drying lumber are included here. By-products of establishments in this industry are wood chips, hogged fuel, sawdust, shavings and slabs.

- Cooperage stock
- Dimension stock
- Lumber, rough and dressed
- Mines timbers
- Pales (fence pickets), untreated, unshaped
- Railway ties, untreated
- Shook, box, crate and package
- Spool wood
- Wood lath
- Wood squares, blanks

2521 — Hardwood Veneer and Plywood Industry

Establishments primarily engaged in manufacturing veneer and plywood of hardwoods such as oak, birch and poplar.

- Dimension veneer, hardwood
- Overprints, hardwood plywood
- Plywood, hardwood
- Plywood panels, hardwood, prefinished
- Veneer, hardwood

2522 — Softwood Veneer and Plywood Industry

Establishments primarily engaged in manufacturing veneer and plywood of softwoods such as Douglas fir, spruce and pine.

- Dimension veneer, softwood
- Plywood panels, softwood, prefinished
- Plywood, softwood
- Veneer, softwood

2541 — Prefabricated Wooden Buildings Industry

Establishments primarily engaged in manufacturing prefabricated or pre-cut buildings of wood frame construction. Prefabricated (factory built) buildings include all buildings that are pre-manufactured at a plant either in sections, complete units or in components for "on-site" erection. Establishments primarily engaged in manufacturing mobile homes are classified in 3244 — Mobile Home Industry and those primarily engaged in the erection of prefabricated wooden homes on the site of construction are classified in 4011 — Single Family Housing, construction or 4023 — Institutional Building, construction.

- Cottages, wood frame construction, prefabricated
- Farm building, wood frame construction, prefabricated
- Garages, wood frame construction, prefabricated
- Prefabricated buildings, wood frame construction
- Prefabricating sections for wood buildings
- Prefabricating walls for wooden buildings

Houses, wood frame construction, prefabricated
Modular buildings, wood frame
School buildings, wood frame construction, prefabricated

2542 — Wooden Kitchen Cabinet and Bathroom Vanity Industry

Establishments primarily engaged in manufacturing wooden kitchen cabinets, bathroom vanities (finished and unfinished) and wooden tops for tables, bars and counters (finished and unfinished). Establishments primarily engaged in manufacturing free standing wooden kitchen cabinets are classified in 2611 — Wooden Household Furniture Industry and those primarily engaged in the installation of wooden components in buildings are classified in 4274 — Finish Carpentry, construction.

Bar tops, wooden
Bathroom vanities, wooden
Cabinet components, wooden
Counter tops, wooden
Kitchen cabinets, wooden (except free standing)
Vanity components, wooden

2543 — Wooden Door and Window Industry

Establishments primarily engaged in manufacturing, for industrial or residential use, wooden doors and frames, wooden window units and frames, including those covered with metal or plastic. Establishments primarily engaged in manufacturing metal doors and windows are classified in 3031 — Metal Door and Window Industry.

Bifolding doors, wooden
Combination doors, wooden
Doors, wooden (louvre, flush)
Double-hung window units, wooden
Frames, wooden, door and window
Garage doors, wooden
Pre-hung doors, wooden
Sash, window, wooden (storm, screen)
Sashless window units, wooden
Window units, wooden (including metal or plastic covered)

E — MANUFACTURING

2549 — Other Millwork Industries

Establishments primarily engaged in manufacturing woodworking mill products not elsewhere classified.

- Beams, laminated wood
- Cross arms, wooden
- Flooring, hardwood strips or tiles
- Lumber cores
- Moulding, wooden
- Partitions, wooden
- Rafters, laminated wood
- Roof trusses, wooden
- Stairs, prefabricated, wooden
- Tongue and groove lumber
- Trusses, laminated wood

2561 — Wooden Box and Pallet Industry

Establishments primarily engaged in manufacturing wooden boxes and pallets. Establishments primarily engaged in manufacturing wooden barrels are classified in 2599 — Other Wood Industries not elsewhere classified.

- Ammunition boxes, wooden
- Baskets, wooden
- Boxes, wooden
- Cases, wooden
- Containers, wooden (except barrels)
- Crates, wooden
- Dunnage for the automobile industry
- Food boxes, wooden
- Packing cases, wooden
- Pallets, wooden
- Shook boxes

2581 — Coffin and Casket Industry

Establishments primarily engaged in manufacturing coffins, caskets and other morticians' supplies.

- Burial caskets
- Coffins
- Lining burial caskets and coffins
- Lowering devices, burial
- Morticians' supplies

2591 — Wood Preservation Industry

Establishments primarily engaged in treating wood and wood products against normal decay.

- Cross arms, wooden, treated
- Fence posts, wooden, treated
- Lumber, preserved or treated
- Pitprops, wooden, treated
- Poles and pilings, wooden, treated
- Railway ties, wooden, preserved or treated
- Square timber, preserved or treated
- Wood creosoting
- Wood impregnating under pressure

2592 — Particle Board Industry

Establishments primarily engaged in manufacturing a board made from small, discrete wood elements with a water-resistant adhesive binder (usually urea-formaldehyde) mainly for interior uses but excluding wafer board. Establishments primarily engaged in manufacturing plywood are classified in Industry Group 252 — Veneer and Plywood Industries.

- Laminated particle board (except plywood)
- Particle board
- Particle board overlaying of patterns or designs
- Particle board surface laminated (except plywood)

2593 — Wafer Board Industry

Establishments primarily engaged in manufacturing a board made from thin wafers of wood with a waterproof resin binder (usually phenol-formaldehyde) suitable for applications of a structural nature and can be used also where panels are exposed directly to the weather.

- Aspenite
- Flake board
- Wafer board

2599 — Other Wood Industries not elsewhere classified.
Establishments primarily engaged in manufacturing wooden products not elsewhere classified.

- Agglomerated cork (board, rods, slats)
- Cooperate products, wooden
- Cork
- Dowelling, wooden
- Excelsior, wood
- Fence posts, untreated wood, shaped
- Furniture legs, wooden
- Handles, wooden
- Insulator pins, and brackets, wooden
- Ladders, wooden
- Lamp parts, wooden
- Match blocks and splints
- Reels, spools, bobbins, wooden
- Rulers, wooden
- Shuttles, wooden
- Snow fence, wire and lath
- Tableware, wooden
- Utensils, wooden
- Window shade rollers, wooden
- Wood flour
- Wood turning

MAJOR GROUP 27 — PAPER AND ALLIED PRODUCTS INDUSTRIES

E — MANUFACTURING

2711 — Pulp Industry
Establishments primarily engaged in manufacturing mechanical, semi-mechanical and chemical wood pulp for sale as such. These establishments may manufacture paper as a secondary product. Establishments primarily engaged in manufacturing paper are classified in other classes of this industry group.

- Chemical pulp
- Mechanical pulp (groundwood and refiner type)
- Semi-chemical pulp
- Wood pulp, dissolving and special alpha (sulphite and sulphate)
- Wood pulp, sulphite, paper

2712 — Newsprint Industry

Establishments primarily engaged in manufacturing newsprint and groundwood printing paper.

Groundwood printing paper
Newsprint paper

2713 — Paperboard Industry

Establishments primarily engaged in manufacturing paperboard and building paper (used in asphalt coated vapour barriers or in the manufacture of insulation batts). Establishments primarily engaged in manufacturing building board are classified in 2714 — Building Board Industry.

Building paper, not impregnated or coated
Chipboard (paperboard)
Corrugating board
Liners, kraft or paperboard
Paperboard, container and boxboard grade
Shoe board
Strawboard for corrugated containers

2714 — Building Board Industry

Establishments primarily engaged in manufacturing building board. Establishments primarily engaged in manufacturing wafer board are classified in 2593 — Wafer Board Industry; and those primarily engaged in manufacturing expanded plastic insulation board are classified in 1611 — Foamed and Expanded Plastic Products Industry.

Building board or softboard (fibreboard)
Fibreboard woodboard
Hardboard (Masonite)
Insulation board, wood fibre
Panels, ceiling, wood fibre (including acoustic)
Softboard
Tiles, ceiling, wood fibre (including acoustic)

2719 — Other Paper Industries

Establishments primarily engaged in manufacturing fine, specialty and sanitary papers. Establishments primarily engaged in manufacturing newsprint (including groundwood printing) are classified in 2712 — Newsprint Industry.

- Blotting paper
- Book paper (except groundwood printing)
- Bristol paper
- Decalcomania paper
- Duplicating paper
- Facial tissue stock
- Filter paper
- Fine paper, miscellaneous
- Lightweight paper
- Manifold papers
- Matrix paper
- Onion skin paper
- Printing papers (except groundwood printing)
- Reproduction paper
- Serviette stock, paper
- Toilet tissue stock
- Towelling stock, paper
- Transfer paper (gold, silver)

2721 — Asphalt Roofing Industry

Establishments primarily engaged in manufacturing asphalt saturated roofing and siding materials.

- Asphalt paper laminating
- Asphalt roofing (paper base) coated
- Felt roofing, asphalt saturated
- Mineral surface asphalt roofing
- Roll roofing, asphalt
- Sheathing (kraft base), tar and asphalt impregnated
- Shingles, asphalt
- Sidings, asphalt

2731 — Folding Carton and Set-up Box Industry

Establishments primarily engaged in manufacturing paper and paperboard set-up boxes, folding boxes and cartons, and fibrous cans. Establishments primarily engaged in manufacturing corrugated boxes are classified in 2732 — Corrugated Box Industry.

- Boxes, folding, paper and paperboard
- Boxes, rigid, paper and paperboard
- Boxes, set-up, paper and paperboard
- Cardboard boxes (folding and set-up)
- Cartons, folding, paper and paperboard
- Dividers for shipping cartons, paper and paperboard
- Egg cartons, paperboard
- Fibrous cans, paperboard
- Fillers for egg cases, paper and paperboard
- Milk cartons, paperboard

2732 — Corrugated Box Industry

Establishments primarily engaged in manufacturing shipping boxes or cases made of corrugated paper or paperboard. Establishments primarily engaged in manufacturing folding and set-up boxes are classified in 2731 — Folding Carton and Set-up Box Industry.

- Boxes, corrugated, paper and paperboard
- Cardboard boxes and cartons, corrugated
- Cartons, corrugated, paper and paperboard
- Corrugated paper and paperboard
- Corrugated sheets
- Corrugated wrappers, sheets and rolls

2733 — Paper Bag Industry

Establishments primarily engaged in manufacturing paper bags of all kinds. Establishments in this industry may produce bags of other materials such as foil or polycoated paper.

- Aluminum foil bags
- Garment bags, paper
- Grocery bags, paper
- Multi-wall shipping sacks, paper
- Paper bags
- Shipping sacks, paper
- Shopping bags (with handles), paper

2791 — Coated and Treated Paper Industry

Establishments primarily engaged in coating and treating paper (except asphalt roofing). Establishments primarily engaged in manufacturing asphalt roofing are classified in 2721 — Asphalt Roofing Industry.

- Blueprint paper
- Clay-coated and enamelled paper and paperboard
- Gummed paper and paper tape (including paper sheets)
- Plastic coated paper
- Printed wrapping paper
- Tracing paper
- Vegetable parchment
- Wallpaper
- Waxed paper
- Whiteprint paper

2792 — Stationery Paper Products Industry

Establishments primarily engaged in converting paper stock into stationery products.

- Adding machine paper rolls
- Business machine paper supplies
- Cash register paper rolls
- Envelopes
- Exercise books and pads
- Folders, filing
- Index cards or guides, filing
- Loose-leaf fillers
- Notebooks
- Pads and tablets, paper
- Papeteries
- Scribblers
- Stationery paper
- Tabulating cards
- Typewriter paper
- Writing paper, cut, boxes, plain or rules

2793 — Paper Consumer Products Industry

Establishments primarily engaged in converting sanitary paper stock into consumer products including paper sanitary napkins and disposable diapers. Establishments primarily engaged in producing sanitary napkins and diapers of textile material are classified in 1994 — Hygiene Products of Textile Material Industry.

Diapers, paper
Facial tissues, paper
Handkerchiefs, paper
Napkins (table), paper
Paper, household products
Place mats, paper
Sanitary napkins, paper
Serviettes, paper
Tablecloths, paper
Toilet paper
Towels, paper

2799 — Other Converted Paper Products Industries not elsewhere classified

Aluminum foil containers
Aluminum foil laminates
Cellulosic film in sheets or rolls
Cellulosic insulation
Cheque paper
Cigarette filter tips, paper
Cigarette paper in books and tubes
Cones, paper
Cores, paper
Cups, baking and bonbon paper
Cups, food packaging, paper
Cups, ice cream, paper
Drinking cups, paper
Drums, paper and paperboard
Egg cartons, moulded pulp
Excelsior (shredded paper)
Food containers, moulded pulp or paper
Meat trays, moulded pulp
Medical supplies, paper
Moulded pulp products
Paper cones, core and tube
Pie plates, aluminum foil
Plates, paper
Reinforced paper
Safety paper
Straws, drinking, paper
Surgical supplies, paper
Telegraph tape, paper
Tubes, paper
Twine, paper

Annex B
EXPLANATORY NOTE ON COMMODITY VERSUS VALUE-ADDED PRODUCTS

The terms "commodity" and "value-added" can have different meanings in different contexts. Unless otherwise specified, they have been used in this document to classify forest products into two separate categories. In the paper and allied industries sector, market pulp and newsprint have been classified as commodity products. higher value-added or converted paper products include packaging, coated papers, business papers, stationery, tissue and other consumer products. In the wood industries sector, lumber, veneer, plywood, particleboard, oriented strandboard (wafer board), shakes and shingles have been classified as commodity products. Higher valued-added wood products include prefabricated wooden buildings, wooden windows and doors, wood kitchen cabinets, hardwood flooring, pallets and millwork.

The principal distinction between commodity and value-added products is the undifferentiated nature of the products of different producers in a given industry subsector. Products classified as commodity products tend to be those where a large number of firms produce very similar outputs. higher value-added products, on the other hand, tend to have a greater degree of product differentiation than commodities. In general, commodity forest products tend to have less value-added per unit of wood fibre than value-added products.

The process of classifying all forest products into these two categories is a somewhat subjective and imperfect exercise. Since most forest products manufacturers add considerable value to their wood input, value-added in this context is a relative rather than an absolute term. For example, although market pulp is considered as a commodity, pulp producers usually increase the value of their wood input many times through the pulping process. At the same time, the value-added per unit of wood fibre used in producing a tonne of market pulp would normally be lower than the amount of value-added in a tonne of coated paper.

Another difficulty associated with this system of classification is that it is constantly evolving. For example, while most new forest products would be classified as value-added in the early stages of their life cycle, as more producers enter the market with similar or identical products, they tend to be considered as commodities.

Being concerned with job creation and economic growth, the federal government naturally wishes to see that the level of value-added activity that takes place in Canada is maximized. However, a shift from the production of commodities to higher value-added manufacture may not always be immediately attractive to an individual producer. It should be noted that the manufacturing process is just one means through which value can be added to a product. Producers of commodities can also command premium prices for their products through specialized marketing and improved customer service.

Despite a number of limitations, the classification of forest products into commodity and value-added categories can be useful in analyzing an industry as large and diverse as the Canadian forest products sector.